

## Abstract

A plasma processing apparatus enabling reduction of the deposition of CF polymers in a processing chamber. The plasma processing apparatus (1) comprises a plasma processing vessel (3) having a large diameter at the lower portion and a small diameter at the upper portion to define a processing chamber (2) inside the vessel. The pressure in the processing chamber (2) is reduced to a predetermined vacuum atmosphere, and a processing gas containing a CF gas is introduced into the processing chamber (2) and changed to a plasma, and thereby a semiconductor wafer (34) is subjected to a desired microprocessing. A  $Y_2O_3$  sprayed coating (41) is formed over a predetermined area of an inner wall (3b) of the plasma processing vessel (3) so that solid particles of CF polymers produced from the decomposition components of the CF gas by the plasma may be prevented from flying and adhering to the inner wall (3b) and the surface of the parts in the processing chamber, and the CF polymers may be prevented from depositing.